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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/544,210

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Yasufumi Takahashi

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KUBOVCIK & KUBOVCIK
SUITE 1105
1215 SOUTH CLARK STREET
ARLINGTON, VA 22202

EXAMINER

ARCIERO, ADAM A

ART UNIT

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1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/544,210	Applicant(s) TAKAHASHI ET AL.	
	Examiner ADAM A. ARCIERO	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19, 21 and 23-30 is/are pending in the application.
- 4a) Of the above claim(s) 26-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19, 21 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/11/2010</u> . | 6) <input checked="" type="checkbox"/> Other: <u>machine translation NPL</u> . |

Art Unit: 1795

NONAQUEOUS ELECTROLYTE SECONDARY BATTERY

Examiner: Adam Arciero

Art Unit 1795

S.N. 10/544,210

September 22, 2010

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 25, 2010 has been entered. Claim 19 has been amended. Claims 20 and 22 are canceled. Claims 26-29 remain withdrawn from further consideration. Claim 30 is newly added.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Newly submitted claim 30 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The subject matter of the aforementioned claim is a battery comprising a positive electrode having a lithium metal oxide containing Li and Co and having a layered structure and further comprising Zr and Mg and further wherein said battery has an end of charge voltage of at least 4.4 V, which is a distinct species from the battery claimed in originally presented claim 19.

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Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 30 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

4. Claims 19, 21 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki (machine translation for JP 2002-358963 as found in IDS dated 02/16/2010).

As to Claim 19, Yamazaki discloses a nonaqueous battery comprising both positive and negative electrodes and an electrolyte, and further wherein said positive electrode comprises a lithium transition metal compound for use as a positive active material in a rechargeable battery comprising the formula $\text{Li}_x\text{Co}_{1-y-z}\text{Zr}_y\text{Me}_z\text{O}_{2-a}$ wherein Me can be Mg and $1 < x < 1.2$, $0 < y \leq 0.01$, $0 \leq z < 0.1$, and $-0.1 \leq a \leq 0.1$ (Abstract). Yamazaki further discloses a similar method of making the positive active material, which comprises mixing the raw materials and heat treating said mixture over a predetermined time period (paragraph [0053]) and wherein said active material is a layered structure (paragraph [0050]). Yamazaki further discloses wherein the end-of-charge voltage can be set to 4.3V (paragraph [0054]).

As to Claim 21, Yamazaki discloses the ranges of Zr and Mg as overlapping each other Mg is preferred to be contained in an amount of 0 to 0.05 (paragraph [0016]) and Zr is preferred to be contained in an amount of 0.001 to 0.05 (paragraph [0015]). Therefore, Yamazaki teaches that both Zr and Mg can be contained in equimolar amounts.

As to Claim 23, Yamazaki discloses wherein the negative electrode material is carbon

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(paragraph [0042]) and further that an end-of-charge voltage of 4.4V can be realized (paragraph [0055]). Yamazaki does not specifically disclose wherein when the end-of-charge voltage is 4.4V, a ratio in charge capacity of the negative electrode to the positive electrode is 1.0-1.2. However, it is the position of the Examiner that such properties of the active materials are inherent, given that the materials and method for producing (sintering and mixing) disclosed by Yamazaki and the present application are the same. A reference which is silent about a claimed invention's features is inherently anticipatory of the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. *In re Robertson*, 49 USPQ2d 1949 (1999).

Claim Rejections - 35 USC § 103

5. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Biensan et al. on claims 19-21 are withdrawn, because Applicant has amended the claims.
6. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Biensan et al. and Tanaka on claim 24 is withdrawn, because Applicant has amended the claims.
7. The claim rejections under 35 U.S.C. 103(a) as being unpatentable over Biensan et al. and Hironaka et al. on claim 25 is withdrawn, because Applicant has amended the claims.

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8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (machine translation for JP 2002-358963 as applied to claims 19, 21 and 23 above, and further in view of Tanaka (US 5,487,960).

As to Claim 24, Yamazaki does not specifically disclose wherein the electrolyte contains a cyclic carbonate, and a chain carbonate as a solvent, and the cyclic carbonate content of the solvent is 10-30% by volume.

However, Tanaka teaches of a nonaqueous electrolyte secondary battery (Title) wherein the electrolyte comprises a solvent mixture of ethylene carbonate (EC) and diethyl carbonate (DEC), wherein the cyclic carbonate (EC) is present in 25% of the volume of the total solvent mixture (pg. 6, Table 11, battery No. 073). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the electrolyte solution of Yamazaki so as to comprise ethylene carbonate in a volume content of 25% of the total volume of the solvents, because Tanaka teaches that the safety of the batteries can be enhanced with proper choice of the electrolytic solution.

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (machine translation for JP 2002-358963 as applied to claims 19, 21 and 23 above, and further in view of Hironaka et al. (US 2001/0031391 A1).

As to Claim 25, Yamazaki does not specifically disclose wherein the positive electrode comprises a carbon material in the amount of less than 5 wt%.

However, Hironaka et al. teaches of a nonaqueous electrolyte secondary battery having a positive electrode with a positive active material. Said electrode further comprises a carbon

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material, a binder and a conductor, wherein the carbon material does not exceed 2 wt% of the total positive electrode materials (pg. 5, Table 3). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the electrode of Yamazaki so as to comprise a carbon material of less than 5 wt % of the total electrode materials, because Hironaka et al. teaches that the cycle life and power characteristics of the battery can be improved.

Response to Arguments

10. Applicant's arguments with respect to claim 19 have been considered but are moot in view of the new ground(s) of rejection as necessitated by Applicant's amendments to the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM A. ARCIERO whose telephone number is (571)270-5116. The examiner can normally be reached on Monday to Friday 8am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Adam A Arciero/
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795